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scheduler code for scheduling items of information in accordance with values of the priorities;

generator code for generating a user interrupt in response to a user interacting with the user interface;

clearance code for clearing the scheduled items of information in response to the user interrupt;

estimation code for estimating a time when the user will finish interacting with the user interface;

rescheduler code for rescheduling items of information in accordance with the values of the priorities at a the estimated time;

repetition code for repeating the operations of the estimation code and the rescheduler code, if the user is still interacting with user interface at the estimated time;
and

display code for displaying the scheduled information according to priority, if the user is not interacting with user interface at the estimated time.

REMARKS

At this time, Applicant requests clarification of the status of the drawings.

Applicant notes that the Office Action indicates that the drawings are informal. However, Applicant declared the drawings to be formal. Accordingly, clarification as to the classification of the drawings and reasons therefore are respectfully requested.

Applicant respectfully requests reconsideration and allowance of the present application in view of the foregoing amendments and the following remarks.

Claims 1-28 are pending in the present application. Claims 1, 14, and 25-28 are the independent claims.

Claims 1-28 have been amended. No new matter has been added.

The specification has been amended to correct minor informalities and to improve its idiomatic English form. Favorable consideration is requested.

By separate paper filed concurrently herewith, Applicant seeks approval to amend Figure 1 to correct a typographical error. Favorable consideration is requested.

Claims 1-28 stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,664,948 (Dimitriadis, et al.). This rejection is respectfully traversed.

In one aspect of the present invention, independent Claim 1 recites, inter alia,:

(c) rescheduling items of information in accordance with the values of the priorities at a time after termination of the user interrupt.

Independent Claims 25 and 27 correspond generally to independent Claim 1 and recite similar features in apparatus and computer readable storage medium forms, respectively.

In another aspect of the present invention, independent Claim 14 recites, inter alia,:

(d) estimating a time when the user will finish interacting with the user interface; and

(e) rescheduling items of information in accordance with the values of the priorities at the estimated time . . .

Independent Claims 26 and 28 correspond generally to independent Claim 14 and recite similar features in apparatus and computer readable storage medium forms, respectively.

As explained in the specification at, for example, page 4, line 27 through page 5, line 15, by the aforesaid features, the system can determine the priority of each item of information under conditions at a particular time and can select the item of information with the highest priority. Further, when a user interrupts the process, the items of information are rescheduled according to their priority. As a result, problems associated with the items of information having to wait in long queues and the display of items of information at inappropriate times can be avoided, and the value of displaying particular items of information at particular times can be maximized.

However, Applicant respectfully submits that Dimitriadis, et al. does not disclose or suggest at least the above-discussed claimed features as recited, inter alia, in Claims 1, 14, and 25-28. Thus, Dimitriadis, et al. also fails to achieve the aforementioned advantageous performance. It is further respectfully submitted that there has been no showing of any indication of motivation in Dimitriadis, et al. that would lead one having ordinary skill in the art to modify it in the manner suggested by the Office Action to arrive at the above-discussed claimed features.

Dimitriadis, et al. relates to delivery of data including preloaded advertising data and teaches a system and method for the presentation of advertisements in a moving vehicle. As explained in the specification at page 1, line 26 through page 2, line 2, the system and method of Dimitriadis, et al. includes selecting advertisements in response to events such as the location of the vehicle and the time and then placing the advertisements into a queue. Dimitriadis, et al. further teaches that when an event occurs that takes control of the output devices (e.g., a system interrupt), the queue is delayed. In stark contrast, Claim 1, for example, recites “rescheduling items of information in accordance

with the values of the priorities at a time after termination of the user interrupt” and Claim 14, for example, recites “estimating a time when the user will finish interacting with the user interface; and rescheduling items of information in accordance with the values of the priorities at the estimated time. . . .”

Also, regarding Claim 1, the Office also takes the position that “activating a user interrupt in response to user input” would have been obvious to one of ordinary skill in the art at the time of the invention of the present application in view of Dimitriadis, et al. Applicant respectfully disagrees and submits that, even assuming, arguendo, that the Office’s position is accurate, such a teaching or suggestion would not render obvious the aforementioned features of Claims 1, 14, and 25-28.

The failure of the Dimitriadis, et al. to disclose or suggest at least the aforesaid features of Claims 1, 14, and 25-28 proves fatal to establishing a prima facie case of obviousness against these claims since MPEP §2142 requires that:

To establish a prima facie case of obviousness... the prior art reference (or references when combined) must teach or suggest all the claim limitations.

For at least this reason, Applicant respectfully submits that amended independent Claims 1, 14, and 25-28 are allowable over the patent to Dimitriadis, et al.


For the foregoing reasons, Applicant submits that the independent claims patentably define the present invention over the citations of record. Further, the dependent claims should also be allowable for the same reasons as the base claims from which they depend and further due to the additional features that they recite. Separate and individual consideration of each of the dependent claims is respectfully requested.

Applicant believes the present Amendment is responsive to each of the points raised by the Examiner in the Official Action, and submits that the present

application is in allowable form. Favorable consideration of the claims and passage to issue of the present application at the Examiner's earliest convenience earnestly are solicited.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



Attorney for Applicant
Michael E. Kondoudis
Registration No. 42,758

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
MEK\cmv
DC_MAIN 115822 v 1

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE SPECIFICATION

Paragraph at page 1, line 3 to line 9 has been amended as follows:

--The present invention relates to a method and apparatus for displaying items of information on a display apparatus. The present invention also relates to a method and apparatus for scheduling items of information. The present invention also relates to a c a computer readable medium comprising a computer program for displaying items of information on a display apparatus. The present invention still further relates to a [a] computer readable medium comprising a computer program for scheduling items of information.--

Paragraph at page 1, line 11 to line 16 has been amended as follows:

--A large portion of advertising today involves broadcasting to a large audience. For advertisers that target a large portion of the population this may be appropriate, but for smaller advertisers these methods are not always appropriate. Any method which allows advertisers to cost effectively target a smaller, more specific audience will be beneficial. As the cost of technology continues to reduce, it is now foreseeable to have many small public displays that advertise to smaller, more localized [localised] audiences.--

Paragraph at page 1, line 26 to page 2, line 2 has been amended as follows:

--United States Patent No. 5,664,948 entitled "DELIVERY OF DATA INCLUDING PRELOADED ADVERTISING DATA" describes a system and method for the

presentation of advertisements in a moving vehicle. In U.S. Patent No. 5,664,948 [this patent], the described method for scheduling advertisements involves selecting advertisements in response to events such as time and location of the vehicle and then placing the advertisements into a queue. In the event that a system interrupt occurs which takes control of the output devices, such as an interrupt responding to user interaction, the queue would have to be delayed. This could result in the queue becoming undesirably long and queued advertisements may not get played under the conditions they were intended to be played. Furthermore, advertisements are selected on a first picked first served basis that may or may not result in the most appropriate advertisement being played.--

Paragraph at page 4, line 27 to page 5, line 15 has been amended as follows:

--The preferred embodiment provides a preferred apparatus and method for the display of items of information designed for small and localized [localised] audiences. In particular, the preferred embodiment provides a scheduling method for scheduling items of information, which may include advertisements. These items of information may be based on conditions such as location and [,] user interaction, in addition to other definable events. During the process of scheduling an item of information, the current conditions are used to determine which item of information would get the most value out of being scheduled at that particular time. To do this, the system determines the priority of each item of information in the database [data base] under the conditions at the particular time and selects the item of information with the highest priority. This method can be implemented on the run, so that items of information

can be scheduled around unpredictable user interaction. During this processing, a user interrupt will be generated in response to a user interacting with the user interface. The schedule of items of information will be cleared in response to such a user interrupt and a time is estimated on how long the user will interact with the user interface. The process will then schedule items of information for the current estimated time. If the user is still interacting with the user interface at the end of the current estimated time, then the process will again clear the schedule, estimate a further time and schedule items of information for the next estimated time. This continues until the user is finished with the user interface and the process will then display the scheduled items of information at the current estimated time according to their priority. In this way, the preferred embodiment is a more flexible system, in that each advertisement is prioritized [prioritised] at a particular instant in time rather than placing them in a queue. Thus avoiding long queues and inappropriate items of information being displayed.--

Paragraph at page 5, line 16 to line 22 has been amended as follows:

--Whilst the preferred embodiment is described with reference to a generic application, it has, due to its nature, a multitude of applications. For example, the preferred embodiment may be used in a public transport environment such as taxis, buses, trains and airplanes [aeroplanes] for displaying timetables and/or advertisements. The preferred embodiment may also be used in public waiting areas, such as in airports, train stations, bus stops, doctors surgeries, lifts etc. Furthermore, the preferred embodiment may also be used in shops, canteens and billboards.--

Paragraph at page 5, line 23 to page 6, line 2 has been amended as follows:

--Fig. 1 shows a block diagram of an information display apparatus 1. The apparatus 1 comprises a number of output devices 100, a user interface 150, a user application module 170, a user activity analyzer [analyser] 160, a scheduler [Scheduler] 140, local storage device 130, datalink 180, and output compiler 110. Advertising and other items of information are output through the output devices 100 such as a conventional display unit 101, audio output 102 and a printer output 103. The display unit 101 displays information and advertisement videos, animations, images or text. The display unit 101 would also be used to display any menus required to show the options that the system may present to the user at various times. Audio output 102 may be used to support the video information in the display unit 101 where audio is desirable. Information leaflets and advertisement coupons could be printed out through the printer output 103. Information leaflets could include news, maps, phone numbers, addresses, etc for the user. Coupons designed by the advertisers would also provide a feed back mechanism for the advertisers.--

Paragraph at page 6, line 30 to page 7, line 10 has been amended as follows:

--Preferably, the embodiment comprises a user activity analyzer [analyser] 160. However, the present invention is not limited to such a device, and it may be dispensed with in some implementations. The user activity analyzer [analyser] process 160 monitors the user interaction. By detecting the presence of a user and monitoring the user interaction, a user profile 170 is developed which can assist the scheduler 140 to schedule the most appropriate

advertisements or other items of information for the user. For example, if the user accesses a menu for restaurants, the user profile 170 would indicate the user's interest in restaurants. This could be implemented by recording the key word "restaurant" along with the time that the user accessed the restaurant menu. The recording of the time with the key word is important, as such permits the influence that the key word has on the operation of the scheduler 140 to be altered, for example reduced, over time. Such a reduction or decay may be implemented by any function that decreases in value as the time since the key word was added increases. If the user accesses the restaurant menu again, the apparatus would either update the time value of the existing "restaurant" key word entry or alternatively add a totally new record.--

Paragraph at page 7, line 11 to line 20 has been amended as follows:

--A new user profile is produced and used if the user activity analyzer [analyser] 160 determines [determined] that the current user had finished or gone away. The analyzer [analyser] 160 may determine this via a presence sensor such as an infra red sense or weight sensor, or alternatively using a time out routine where the user analyzer [analyser] 160 monitors the time since the user last interacted with the system. A new user profile may also be used when events related to the user status occur. For example, resetting the fare meter in a taxi would indicate that the current user has left the taxi and hence would be an appropriate time to create a new user profile 170. Each user profile 170 developed is preferably stored in the local storage device 130, so that system administrators may provide feedback on the system usage for themselves as well as for the advertisers.--

Paragraph at page 8, line 1 to line 3 has been amended as follows:

--Under normal operation, there are three concurrent processes running: the scheduler 140; [,] the output compiler 110; and the control of the output devices 100. During user interaction, the user activity analyzer [analyser] 160 is also activated.--

Paragraph at page 8, line 4 to line 16 has been amended as follows:

--The processes performed by the user application module 170, scheduler 140 and the user activity analyzer [analyser] 160 may be implemented on a general-purpose computer. The user interface 150, local storage device 130, data-link 180, output compiler 110 and output devices 100 can also be implemented as peripheral devices interfacing such a general purpose computer. In particular, the steps of the processes performed by the scheduler 140, user application module 170 and the user activity analyzer [analyser] 160 can be effected by coded instructions in the software that are carried out by the computer. The software may be stored in a computer readable medium, including the storage devices described below, for example. The software is loaded into the computer from the computer readable medium, and then executed by the computer. A computer readable medium having such software or computer program recorded on it is a computer program product. The use of the computer program product in the computer preferably effects an advantageous apparatus for displaying items of information.--

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE CLAIMS

1. (Amended) A method of scheduling items of information, [wherein] each item of information having [has] an associated priority which is a function of time, said [the] method comprising the steps of:

- (a) scheduling items of information in accordance with [the] values of the [said] priorities;
- (b) activating a user interrupt in response to user input; and
- (c) rescheduling [scheduling] items of information in accordance with the values of the [said] priorities at a time after termination of the user interrupt.

2. (Amended) A method as claimed in claim 1, wherein said activating step (b) comprises [the sub-step of:]

(b)(i) estimating a time when the user input will terminate, [;] and said rescheduling [scheduling] step (c) comprises [the sub-step of]

(c)(i) rescheduling [scheduling] items of information in accordance with the values of the [said] priorities at the [said] estimated time.

3. (Amended) A method as claimed in claim 2, wherein, if the [said] user is still interacting at the end of the [said] estimated time, said method repeats said estimating step (b)(i) and said rescheduling [scheduling] step (c)(i) for a further estimated time.

4. (Amended) A method as claimed in claim 1, wherein one or more of the [said] priorities are dependent upon one or more parameters as a function of time.

5. (Amended) A method as claimed in claim 4, wherein one of the [said] priorities is dependent upon a [the] location or a distance from a given location.

6. (Amended) A method as claimed in claim 4, wherein one of the [said] priorities is dependent upon a [the] frequency that the associated item of information is displayed.

7. (Amended) A method as claimed in claim 4, wherein one of the [said] priorities is dependent upon a [the] time since the associated item of information was last displayed.

8. (Amended) A method as claimed in claim 4, wherein one of the [said] priorities is dependent upon a [the] number of times the associated item of information has been displayed.

9. (Amended) A method as claimed in claim 4, wherein one of the [said] priorities is dependent upon a [the] cost of the associated item of information.

10. (Amended) A method as claimed in claim 1, [wherein said method] further comprising [comprises] the [following] steps of:

monitoring the user input; and

generating a user profile based upon the [said] monitoring.

11. (Amended) A method as claimed in claim 10, wherein one of the [said] priorities is dependent upon the user profile.

12. (Amended) A method as claimed in claim 1, wherein said scheduling step (a) comprises:

(a)(i) determining a [the] maximum priority of all of the priorities of the items of information at a [the] next available time for display;

(a)(ii) scheduling the item of information associated with the [said] determined maximum priority as an [the] item of information to be displayed at the next available time; and

(a)(iii) repeating steps (a)(i) and (a)(ii) for the next available time.

13. (Amended) A method as claimed in claim 1, wherein said rescheduling [scheduling] step (c)(i) comprises:

(c)(i)(1) determining a [the] maximum priority of all of the priorities of the items of information at a [the] next available time for display;

(c)(i)(2) rescheduling [scheduling] the item of information associated with the [said] determined maximum priority as an [the] item of information to be displayed at the next available time; and

(c)(i)(3) repeating steps (c)(i)(1) and (c)(i)(2) for the next available time.

14. (Amended) A method of displaying items of information on a display apparatus comprising a display unit and an user interface, [wherein] each item of information having [has] an associated priority which is a function of time, said [the] method comprising the steps of:

- (a) scheduling items of information in accordance with [the] values of the [said] priorities;
- (b) generating a user interrupt in response to a user interacting with the user interface;
- (c) clearing the [said] scheduled items of information in response to the user interrupt;
- (d) estimating a time when the user will finish interacting with the user interface;
- (e) rescheduling [scheduling] items of information in accordance with the values of the [said] priorities at the [a said] estimated time;
- (f) repeating steps (d) to (e), if the user is still interacting with the user interface at the estimated time; and [otherwise]

(g) displaying the [said] scheduled information according to [their] priority, if the user is not interacting with the user interface at the estimated time.

15. (Amended) A method as claimed in claim 14, wherein one or more of the [said] priorities are dependent upon one or more parameters as a function of time.

16. (Amended) A method as claimed in claim 15, wherein one of the [said] priorities is dependent upon a [the] location or a distance from a given location.

17. (Amended) A method as claimed in claim 15, wherein one of the [said] priorities is dependent upon a [the] frequency that the associated item of information is displayed.

18. (Amended) A method as claimed in claim 15, wherein one of the [said] priorities is dependent upon a [the] time since the associated item of information was last displayed.

19. (Amended) A method as claimed in claim 15, wherein one of the [said] priorities is dependent upon a [the] number of times the associated item of information has been displayed.

20. (Amended) A method as claimed in claim 15, wherein one of the [said] priorities is dependent upon on a [the] cost of the associated item of information.

21. (Amended) A method as claimed in claim 14, wherein said method further comprises [the following steps]:

monitoring the user interaction with the user interface; and
generating a user profile based upon the [said] monitoring.

22. (Amended) A method as claimed in claim 21, wherein one of the [said] priorities is dependent upon the user profile.

23. (Amended) A method as claimed in claim 14, wherein said scheduling step (a) comprises:

(a)(i) determining a [the] maximum priority of all of the priorities of the items of information at a [the] next available time for display;

(a)(ii) scheduling the item of information associated with the [said] determined maximum priority as an [the] item of information to be displayed at the next available time; and

(a)(iii) repeating steps (a)(i) and (a)(ii) for the next available time.

24. (Twice Amended) A method as claimed in claim 14, wherein said rescheduling [scheduling] step (e) comprises:

(e)(i) determining a [the] maximum priority of all of the priorities of the items of information at a [the] next available time for display;

(e)(ii) rescheduling [scheduling] the item of information associated with the [said] determined maximum priority as an [the] item of information to be displayed at the next available time; and

(e)(iii) repeating steps (e)(i) and (e)(ii) for the next available time.

25. (Twice Amended) An apparatus that schedules [Apparatus for scheduling] items of information, [wherein] each item of information having [has] an associated priority which is a function of time, said [the] apparatus comprising:

means for scheduling items of information in accordance with [the] values of the [said] priorities;

means for activating a user interrupt in response to user input; and

means for rescheduling [scheduling] items of information in accordance with the values of the [said] priorities at a time after termination of the user interrupt.

26. (Twice Amended) An apparatus that displays [Apparatus for displaying] items of information on a display apparatus, the display apparatus comprising a

display unit and a [an] user interface, [wherein] each item of information having [has] an associated priority which is a function of time, said [the] apparatus comprising:

[first] scheduler means for scheduling items of information in accordance with [the] values of the [said] priorities;

generator means for generating a user interrupt in response to a user interacting with the user interface;

clearance means for clearing the [said] scheduled items of information in response to the user interrupt;

estimation means for estimating a time when the user will finish interacting with the user interface;

rescheduler [second scheduler] means for scheduling items of information in accordance with the values of the [said] priorities at the [a said] estimated time;

repetition means for repeating the operations of the estimation means and the rescheduler [, and second scheduler] means, if the user is still interacting with user interface at the estimated time; and

display means for displaying the [said] scheduled information according to [their] priority, if the user is not interacting with user interface at the estimated time.

27. (Twice Amended) A computer readable medium storing [comprising] a computer program for scheduling items of information, [wherein] each item of

information having [has] an associated priority which is a function of time, the computer program comprising:

code for scheduling items of information in accordance with [the] values of the [said] priorities;

code for activating a user interrupt in response to user input; and

code for rescheduling [scheduling] items of information in accordance with the values of the [said] priorities at a time after termination of the user interrupt.

28. (Twice Amended) A computer readable medium storing [comprising] a computer program for displaying items of information on a display apparatus, the display apparatus comprising a display unit and a [an] user interface, [wherein] each item of information having [has] an associated priority which is a function of time, the computer program comprising:

[first] scheduler code for scheduling items of information in accordance with [the] values of the [said] priorities;

generator code for generating a user interrupt in response to a user interacting with the user interface;

clearance code for clearing the [said] scheduled items of information in response to the user interrupt;

estimation code for estimating a time when the user will finish interacting with the user interface;

rescheduler [second scheduler] code for rescheduling [scheduling] items of information in accordance with the values of the [said] priorities at the [a said] estimated time; repetition code for repeating the operations of the estimation code and the rescheduler [, and second scheduler] code, if the user is still interacting with user interface at the estimated time; and display code for displaying the [said] scheduled information according to [their] priority, if the user is not interacting with user interface at the estimated time.